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GENUS *PTEROCLADIA* (RHODOPHYCEAE) FROM INDIA

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ABSTRACT

While working on the ecology of Gelidiales (Rhodophyta) growing along the Visakhapatnam coast, carposporophytes of *Gelidium heteroplatos* Boergesen with unilocular cystocarps have been collected. Since plants with unilocular cystocarps are placed in the genus *Pterocladia*, the new combination *P. heteroplatos* has been proposed. A detailed description of this gelidiaceous alga, based on the samples collected in different habitats, is given in this paper.

The genus *Pterocladia* (Gelidiales, Rhodophyta) is morphologically similar to *Gelidium* and the former can only be distinguished by the unilocular condition of the cystocarps. From Indian shores, five species of *Gelidium* have been reported in the taxonomic accounts published by Boergesen (1933, 1934, 1935, 1937 and 1938) and other workers (Sreenivasa Rao, 1970; Umamaheswara Rao and Sreeramulu, 1970), namely *G. corneum* (Hudson) Lamouroux, *G. heteroplatos* Boergesen, *G. micropterum* Kuetzing, *G. pulvinatum* f. *parvissima* Boergesen and *G. pusillum* (Stackhouse) Le Jolis. Among these five species, cystocarpic plants have been collected and described only for one species, *Gelidium micropterum* (Sreenivasa Rao, 1970). During the course of our studies on the ecology of Gelidiales growing around the Visakhapatnam coast, cystocarpic plants of *G. pusillum* and *G. heteroplatos* were collected. Cystocarps with ostioles on both sides of the frond were found in *G. pusillum*, whereas cystocarps with ostioles on one side of the frond were seen in *G. heteroplatos* (Fig. 1c). Taking this generic character, the new combination *Pterocladia heteroplatos* is proposed and a detailed description of the alga is given in this paper, based on the materials collected at Visakhapatnam.

DESCRIPTION

Pterocladia heteroplatos (Boergesen) Umamaheswara Rao *et* Kaliaperumal *comb. nov.* Fig. 1. *Gelidium heteroplatos* Boergesen, 1934; 3, Fig. 3; Durairatnam, 1961: 50, Pl. 12, Figs. 5-7; Umamaheswara Rao and Sreeramulu, 1970: 36.

Plants 3-6 cm tall, forming dense tufts or low mats on rocky substrata, attached by discoid holdfasts arising from the prostrate shoots; erect shoots alternately terete and compressed, sometimes flattened throughout, flattened parts 250-800 μ wide, 100-220 μ thick, simple to distichously and irregularly branched; branches alternate, opposite, rarely secund, narrow, terete, subterete or compressed at the base, broadened above, sometimes tapering at the summits; thallus with a cortex of 2-3 layers of pigmented cells and a medulla of colourless cells, surface cells elongated 8-10 μ long, 4-8 μ wide, medullary cells 8-24 μ in diameter, surrounded by thick walled rhizines; tetrasporangial sori with sterile margins, sori scattered on the compressed branches and branchlets, sporangia 36-40 μ long and 20-24 μ broad; cystocarps unilocular, with marked swelling and one

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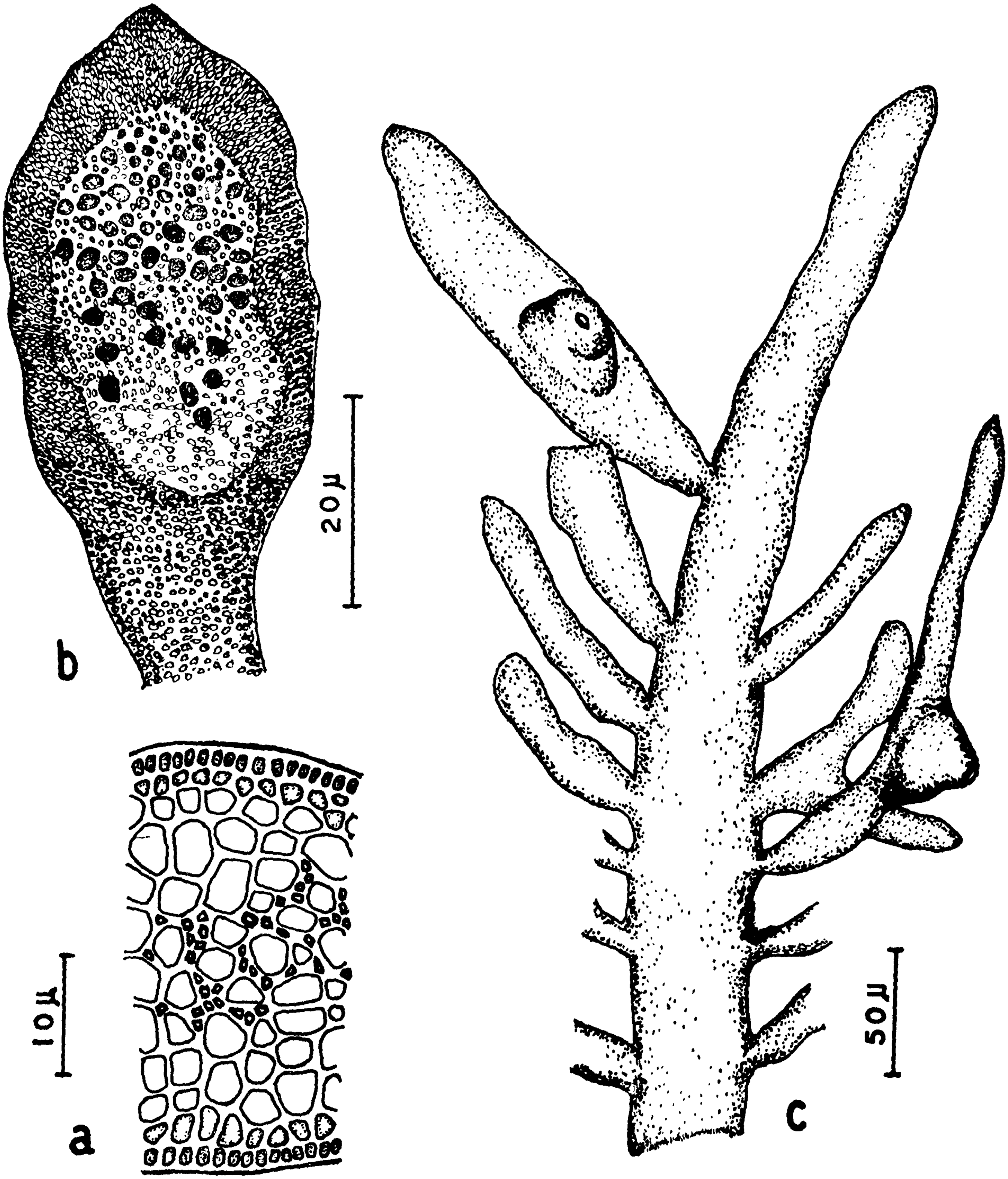

Fig. 1. *Pterocladia heteroplatos*
a. Transverse section of the thallus showing rhizines in the medwllary region. *b.* Tetrasporangial sorus with sterile margin. *c.* Apical part of the erect shoot with unilocular cystocarps,

ostiole (rarely two) on one side of the fronds; antheridial plants not seen.

Type: Boergesen 5275.

Indian distribution: Bombay, Visakhapatnam.

Geographical distribution: India, Ceylon.

This alga is growing on small rocks in sheltered as well as wave exposed areas of the infralittoral fringe. It is very abundant in shingle areas of the shoreline. Specimens collected from different ecological situations vary in size and external appearance, as reported in recent studies on *Gelidium* and *Pterocladia* species growing in Hawaii (Santelices, 1976, 1977). The alga shows different types of plants with simple erect shoots, alternately terete and compressed fronds and pinnately and profusely branched flat fronds. Taking the typical alternately compressed and terete thallus, Umamaheswara Rao and Sreeramulu (1970) reported the occurrence of *Gelidium heteroplatos* Boergesen at Visakhapatnam. More robust, flat and pinnately branched tetrasporic thalli seem to agree with *Gelidium corneum* (Hudson) Lamouroux reported from the same locality by Sreenivasa Rao (1970). The hyphae or rhizines occurred in the medullary region in *P. heteroplatos* (Fig. 1a) and in *G. corneum* also they were restricted to the central medullary region of the thallus (Sreenivasa Rao, 1970).

While describing *G. heteroplatos* from Bombay, Boergesen (1934) pointed out that it is closely related to a form of *G. crinale* (Turner) Lamouroux and he even treated *G. heteroplatos* in other papers as *G. crinale* (Boergesen, 1939 and 1943; Dixit, 1970). Santelices (1977) also observed close agreement between the thalli of these two species. Since bilocular condition has been reported in cystocarps of *G. crinale* (Taylor, 1960), the Indian plant with unilocular cystocarps is described as *Pterocladia heteroplatos*. This is the first report of the genus *Pterocladia* from Indian shores.

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